CompSci 6
Programming Design and Analysis

January 19, 2010
Prof. Rodger

Announcements

• Read for next time Chap. 2.3-2.10
• Finish Classwork 2 for homework
  – Bring to class next time
• Reading Quiz on Blackboard
  – Due beginning of class next time
• Bring laptops to class
• Must install Eclipse and Ambient
  – Update if you already have it installed

History of Programming

• Harvard Mark 1
  – 1944, first automatic digital computer in US
  – Grace Hopper - first programmer for Mark 1
  – Still at Harvard

• ENIAC – Eckert and Mauchly
  – 1946, University of Pennsylvania
  – First useable computer

Java

• Developed 1995 by Sun
  – James Gosling and Patrick Naughton and team
• Simpler than C++
• Rich and LARGE library
• Portable – runs on different platforms
Chap 2 - Java Types and Variables

- Every value has a type:

```java
int number = 6;
double pi = 3.14;
String month = "January";
FileStream infile;
Color originalColor;
```

Identifiers

- Choose meaningful names for variables, methods and classes

```java
int x = 60; // what does x represent?
int numberOfDays = 6;
```

- Follow rules for identifiers
- Follow conventions for identifiers
- What is the difference?

Assignment Statement

```java
int numberOfDays;
numberOfDays = 6;
```

- numberOfDays is “assigned” the value 6
- OR 6 is stored in memory location for numberOfDays
- Don’t say
  - numberOfDays equals 6!

A Java Program

```java
public class HelloCompSciClass {
    public static void main(String [] args) {
        // display a greeting
        System.out.println("Hello, CompSci 6!");
    }
}
```
About the Java Program

• What is the name of the class?
• What is the name of the method?
• What is printed?
• What does the “;” mean?
• What does “public static void” mean?
• What is “String [] args”?

Program to Convert Temperature

public class WeatherConversion
{
    public static void main(String [] args)
    {
        // temp in Fahrenheit
        double temp = 65.0;   // declare, initialize
        double ctemp = (5/9) * (temp – 32);
        System.out.println(temp + “F” + “ = “ + ctemp + “C”);
    }
}

Error in Previous Program

• Output for this program is:
  65.0F = 0.0C

That is not correct! How do we fix it?

Go over work from last class

• One-Heap Nim
  – Go over solution
  – Prof. solve in Eclipse

• Turn in your handwritten solution
# Compiling Java

- **Compiler**
  - Translator from high-level language (Java) to machine language (JVM – Java virtual machine)
- **Path**
  - Use editor to create source file (.java)
  - Compiler
  - Join with class files and library files
  - Result is code for JVM (a running program!)

# What can you do with Eclipse?

- Almost everything!
- Editor
- Compiler - Automatically compiles
- Identifies syntax errors
- Runs program
- Output console
- Visualization of files and folders
- Submission of programs

**Question:** What is a logic error?

# What will we use Eclipse for in CompSci 6?

- Use to write complete java programs
  - Access libraries
- Use as an editor to write text files
  - README – gives info about the program
- Use to write simple methods, then test with APT

# APT – Algorithmic Program Testing

- Not a complete java program
  - No main method
- Focus on and solve one small problem
- Rich set of data for testing
- Use Eclipse editor for APT, but cannot run program! Why?
Classwork Today

- Write Java Code on paper – finish for homework
  - HingedDoor
  - DivToZero

About the Java Program

- What is the name of the class?
  - HelloCompSciClass
- What is the name of the method? main
- What is printed?
  - Hello, CompSci 6!
- What does the “;” mean? end of a statement
- What does “public static void” mean?
  - IGNORE for now
- What is “String [] args”? Parameter, ignore for now